

NOV 23 2005

Application No.: 10/057,959

Docket No.: 30012961-2US (1509-269)

**AMENDMENTS TO THE SPECIFICATION:**

*On page 1 after the title, please insert the following:*

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**Related Applications**

The present application is based on, and claims priority from, British Application Serial Number 0102230.0, filed January 29, 2001, and British Application Serial No. 0127753.2, filed November 20, 2001, the disclosure of both of which are hereby incorporated by reference herein in their entirety.

**Field of the Invention**

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*On page 1, line 5, please insert the following heading:*

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**Background Art**

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**Please replace paragraph [0002] with the following amended paragraph:**

[0002] The use of sound as a means of presenting computer-based services previously represented in visual form (e.g. on a computer monitor) has been proposed. In particular, it [[is]] has been proposed that spatialisation processing of different sounds [[is]] be performed such that the sounds, when played through loudspeakers or some other audio transducer, are presented at particular positions in the three-dimensional audio field. It is envisaged that this will enable

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Internet-style browsing using only sound-based links to services.

*On page 2, line 12, please insert the following heading:*

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**Summary of the Invention**

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*On page 7, line 25, please insert the following heading:*

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**Brief Description of the Drawings**

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*On page 8, line 16, please insert the following heading:*

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**Detailed Description of the Drawings**

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**Please replace paragraph [0032] with the following amended paragraph:**

[0032] Referring now to FIG. 2, an audio system according to an embodiment of the invention, comprises an audio source terminal 11 and a audio playback terminal 13, connected to each another by a wireless data link 14. The source terminal 11 comprises a source computer 15, and a cellular modem 17. The playback terminal 13 comprises a playback computer 19 having an internal processor 23 and an audio processor 24. Instead of being in the form of a computer, the playback terminal 13 could be provided as a mobile device, such as a mobile telephone or personal digital assistant (PDA). Connected to the processor 23 is a cellular modem 21, an audio

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transducer 25, and a user control 27. If the playback terminal was in the form of a mobile device such as a mobile telephone or PDA, the audio transducer and user control may well be integral with the mobile device. The wireless data link ~~[[4]]~~ 14 is established using respective cellular modems 17, 21 which enable a network connection to be set-up using existing cellular telecommunications networks (as are used in mobile telephony systems). The source computer 15 and the playback computer 19 can be conventional personal computer (PC) devices.

**Please replace paragraph [0037] with the following amended paragraph:**

[0037] The codecs ~~19, 21, and 23~~ 29, 31 and 33 are, in this case, variable bit-rate speech codecs. Such codecs are able to encode data at a number of bit-rates and can dynamically and rapidly switch between these different bit-rates when encoding a signal. This allows the encoded bit-rate to be varied during the course of transmission. This can be useful when it becomes necessary to accommodate changes in access network bandwidth availability due to congestion or signal quality. An example variable bit-rate codec is the GSM Adaptive Multi Rate (AMR) codec. The AMR codec provides eight coding modes providing a range of bit-rates for encoding speech: 4.75 kbit/s, 5.15 kbit/s, 5.9 kbit/s, 6.7 kbit/s, 7.4 kbit/s, 7.95 kbit/s, 10.2 kbit/s, and 12.2 kbit/s. When operating in a coding mode, the input signal to such a codec is sampled at a rate of 8 kHz, and 20 ms frames of input samples are encoded into variable length frames according to the coding mode. In a decoding mode, the frames of coded samples are decoded into 20 ms frames of samples. The degradation in quality in the output relative to the input is more severe for the lower bit-rates than for the higher bit-rates.

**Please replace paragraph [0042] with the following amended paragraph:**

[0042] Referring now to FIG. 4, a practical embodiment of the playback part of the audio system of FIGS. 2 and 3 is shown. The playback computer 19 is connected, by a cable ~~[[47]]~~ 52, to an audio transducer, in this case a set of speakers 45. Also, the playback computer 19 is connected to a user-control device, in this case a head-mountable position sensor ~~[[49]]~~ 50. This connection

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is made by means of a cable 51. The use of the cables ~~[[47]]~~ 52 and 51 is not essential, and the wireless data link methods mentioned above could be used (e.g. Bluetooth).

**Please replace paragraph [0043] with the following amended paragraph:**

[0043] In use, a user is positioned in front of the speakers 45 and wears the head-mountable position sensor ~~[[49]]~~ 50. The position sensor ~~[[49]]~~ 50 is arranged to generate direction data which is representative of the direction in which the user is facing (alternatively, it may be chosen to be representative of the gaze direction of the user, i.e. where the user's general direction of sight is directed, though this requires a more sophisticated sensor). Next, the user listens to the sounds being emitted from the speakers 45. The spatially processed data and the first, second, and third audio components are received from the source computer 5 and so first, second and third sounds are heard at three different positions in the three-dimensional audio field. The first, second, and third sounds are represented by the symbols 53a, 53b, and 53c. The first sound 53a is heard to the left of the user's head, the second sound 53b in front of the user's head, and the third sound 53c to the right of the user's head. The first, second, and third sounds 53a, 53b, and 53c represent different services which may be accessed from the source computer 15 by means of the data link 14. The sounds are preferably indicative of the actual service they represent. Thus, the first sound 53a may be "E-mail" if it represents an E-mail service, the second sound 53b "restaurant" if it represents a restaurant information service, and the third sound 53c "banking" if it represents an on-line banking service. In use, the user will choose one of the sounds, in three-dimensional space, as a 'focus' sound, by means of looking in the general direction of the sound. This focus sound is chosen on the basis that the user will have an interest in this particular sound. The determination as to which sound is the focus sound may be used to output that sound at a higher volume, for example.